Surface Warfare Systems

Spirit of '76

Today's Fleet

- Reliable and available
- Meet need, accept risk
- Quality vs quantity

Ready for call for fire

Tomorrow and Future Fleet

- Relevant to theater-level operations
- Fewer, better systems
- Lower life cycle cost

Overwhelming firepower

Evolutionary and Revolutionary

Surface Warfare Systems - Successes

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- TOMAHAWK conversion and remanufacture program ahead of schedule
- RAM, ESSM, CIWS, SPQ-9B testing
- LCAC SLEP continues
- NULKA deployment
- LSD-41 class ASCM defense upgrade nearing completion
- Multi-Function Radar in full scale development
- 5"/62 MK 45 MOD 4 gun at sea in DDG-81 and DDG-82
- Area Air Defense Commander Prototypes at sea
- Mk-54 Light Weight Torpedo tests beginning
- Remote Minehunting system tests on schedule
- Three of four TBMD CTV firings
- CEC underway tests progressing
- And many more…

TOMAHAWK Weapon System
(Block II/III and IV)

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- **Remains the Nation's premier strike weapon**
  - All weather, 24/7, long range, land attack cruise missile
  - 82% overall success rate (Desert Storm - Allied Force)
  - Primary choice to avoid collateral damage
  - 85% of TOMAHAWK targets damaged / destroyed in Kosovo
  - Quick strike - 2 hours from target detection to destruction
  - 1029 fired since 1991, average expenditure is 100 / year
- **Tactical TOMAHAWK (TACTOM)**
  - Will IOC in FY03, longer range, flexible targeting
  - Inflight retargeting, more accurate and responsive
  - Onboard (ship) mission planning and execution
  - Initial buy of 1343 missiles

CINC Weapon of Choice

Navy-Marine Corps Team... the Expeditionary Force

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Land Attack Standard Missile (LASM)

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- 150 NM land attack missile with GPS and Inertial Navigation System
- Cost effective venture, converts 800 Standard Missile air defense rounds
- Will IOC along with USMC AAAV, MV-22 and LCAC(SLEP)
- Growth to longer ranges, heavier payloads
- Potential for international participation

Proven Accuracy

Proven Lethality

Naval Gun Systems

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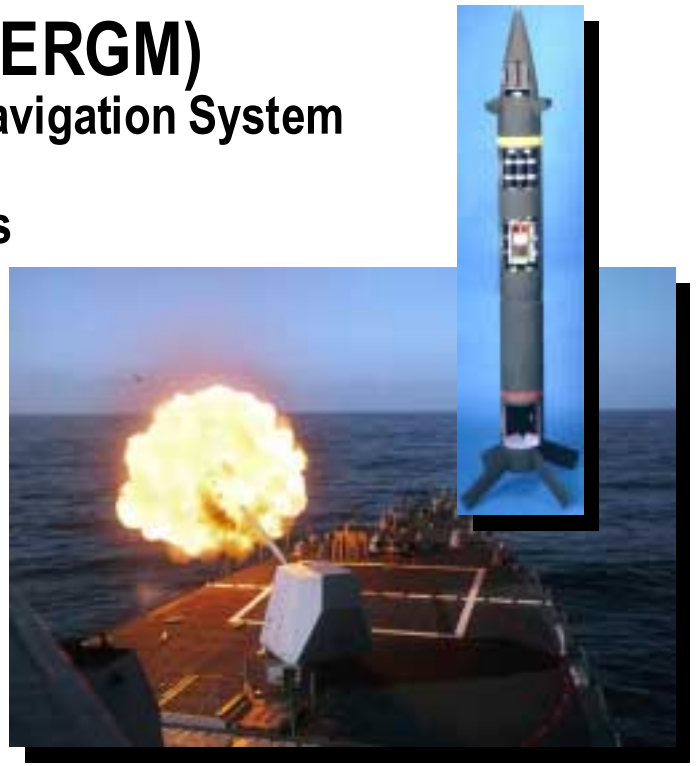
- 5" Extended Range Guided Munitions (ERGM)
  - Rocket assisted projectile with GPS and Inertial Navigation System
  - Range: 62 NM objective with 10m - 20m CEP
  - Resolving range, lethality and guidance challenges
- Advanced Gun System (AGS)
  - Fires 155mm (6.1") ERGM projectile, 100 NM
  - All electric gun, fully automatic, 12 rounds/minute
  - Multiple Round Simultaneous Impact (MRSI) capability
  - Fully supports USMC, Army and Joint Forces Commander requirements
  - IOC with the ZUMWALT class destroyer (DD-21)
- Naval Fires Control System (NFCS)
  - Automates shipboard NSFS mission planning (reduces manning)
  - Receive call-for-fire missions digitally or by voice
  - Fully interoperable with USMC / Army AFATDS
  - Process call-for-fire missions in less than 2.5 minutes
  - Supports ERGM, LASM, TACTOM, and conventional munitions engagements

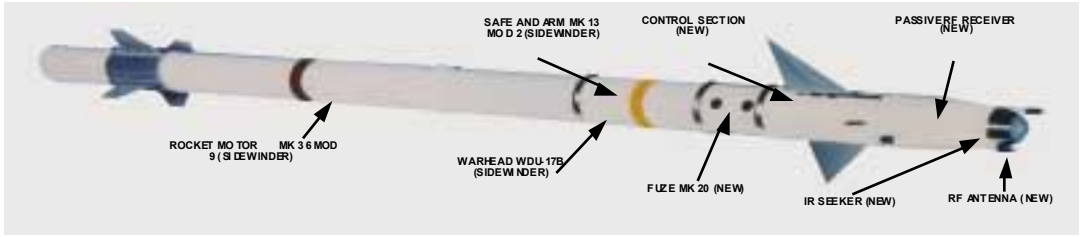


LCAC SLEP

- Program Goals:
  - Extend LCAC life from 20 to 30 years
  - Replace obsolete electronics equipment
  - Sustain/Enhance Craft Capability
  - Establish common configuration baseline
  - Include Enhanced Engines and Deep Skirt

Rolling Airframe Missile (RAM)

- Low cost, high firepower system for defense against anti-ship cruise missiles
- Off-the-shelf (Sidewinder components)
- Capitalizes on development and procurement with international partner(s)



- Low maintenance, high reliability
- Low altitude capability
- Target designation by shipboard sensors
- No fire control illuminators required
- Integrated into ship self defense system

Evolved Sea Sparrow Missile (ESSM)

- Cooperative Development Among 10 Nations in Highly Successful NATO Sea Sparrow Consortium
- Provides significantly improved ASCM hard-kill defense with future growth capability
  - Highly maneuverable
  - Dramatically reduced time to target
  - Increased firepower
  - Expanded battle space
- Continues to meet guided flight test objectives against all threat presentations

CTV-4A

CTV1 Mk 29

CTV2 Mk 29

CTV3 Mk 41

CTV4 Mk 41

CTV4A/GTV1

GTV2 Mk 29

GTV3 Mk 29

IUSW-21 ADM Concept

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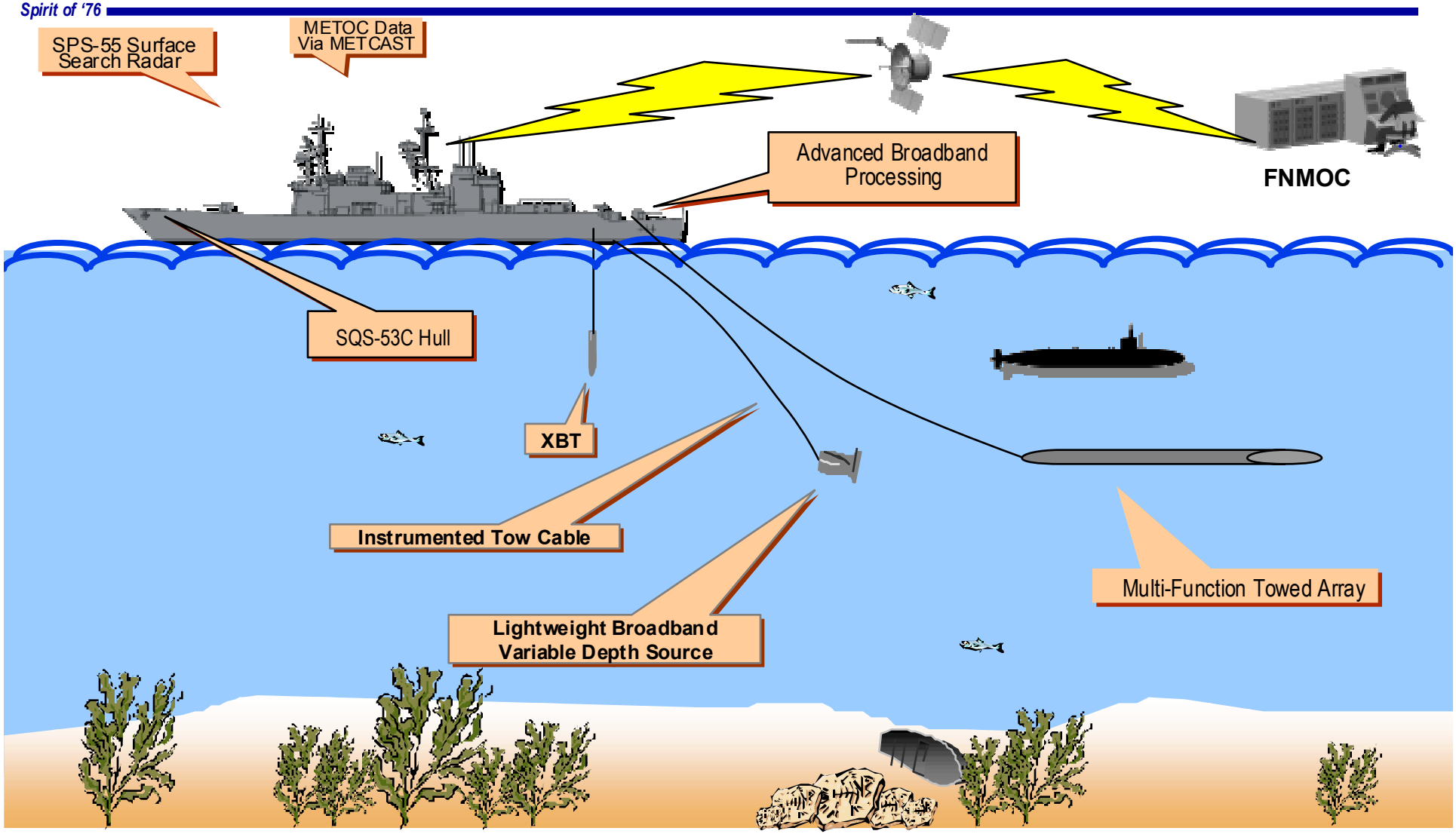

SH-60R

- Replaces SH-60B; upgrades SH-60F
- Increased SUW, USW, and C2 capabilities:
  - Common Cockpit Avionics
    - ARC-210 (Digital Comms)
  - Improved Acoustic Suite
    - AQS-22 Airborne Dipping Sonar (ALFS)
    - New Acoustic Processor
    - Sonobuoy
  - Forward Looking Infra-Red (FLIR)
  - APS -147 Multi-Mode Radar (MMR)
  - Electronic Support Measures (ESM) Upgrade
  - Integrated Self-Defense System
  - Weapons (HELLFIRE, PENGUIN, torpedoes)

Cooperative Engagement Capability (CEC)

Detection and Tracking

- Provides remote sensor cueing to extend detection ranges
- Improves track and identification continuity
- Target discrimination and tracking accuracy superior to any single sensor. Integral to the SIAP
- Expands capability of existing sensors and weapons

Engagement

- Significant increase in depth of fire; Higher p_k
- Engagement of targets not held by own sensors
- Maximizes performance against stressing targets
- Earlier track formation results in faster reaction time and increased battle space
- Improves ability in jamming environments

CEC Status

- Ready for fleet introduction and deployment
  - OPEVAL in Apr/May 01
  - E-2C FOT&E in FY03/FY04
  - Deploys with JFK CVBG in and NIMITZ CVBG in

- Major Program milestones:
  - Milestone C (Full Rate Production) in Nov 01
  - Open competition planned for FY03
- TBMD integration planned for Baseline 2.2
- Growing international interest

Area Air Defense Commander (AADC)

Force Planning

- Allows distributive, collaborative planning
- Utilizes Defended Asset List (DAL), Enemy Order of Battle (EOB), Friendly Order of Battle FOB), Component Commander Defended Assets (CCDA), constraints, etc. to generate Air Defense Plan (ADP)
- "Wargames" ADP through simulated engagements
- Assesses effectiveness of ADP
- Provides rapid ADP comparison
- Supports rapid "What if…?" re-planning in minutes vice hours

Tactical Operations

- Near real to real-time, 3-D, silicon graphics display provides Commanders with rapid situational awareness
- Supports near real to real-time battle management
- Rapid dissemination of tactical data (such as warnings)
- Execution capability through Force Orders vice merely monitoring.

AADC Status

- Two prototypes at sea: USS SHILOH (CG-67) & USS MOUNT WHITNEY (LCC-20)
- First installation scheduled for CG Conversion Ship (FY05)
- AADC DII COE Compliant: ensures Joint interoperability
- Fleet Commanders want it now

Navy AREA TBMD Control Test Vehicle (CTV) Flights

Mission:
Demonstrate Autopilot Response and Performance

Flight Round Configuration:
SM-2 BLK IVA Missile With Mass Modules:
- IR Seeker
- RF Sensor Assemblies
- Dome Cooling System

Demonstrated:
- Performance of Launch and Fly-Out Functions
- Enhanced Missile Structural Integrity
- Autopilot Response Performance
- Stable Autopilot Performance Throughout Flight

Navy Theater Wide TBMD SM-3 AEGIS Leap Intercept Flights

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24 Sep 99 Control Test Vehicle (CTV-1A)
USS SHILOH (CG-67)
Primary Objective

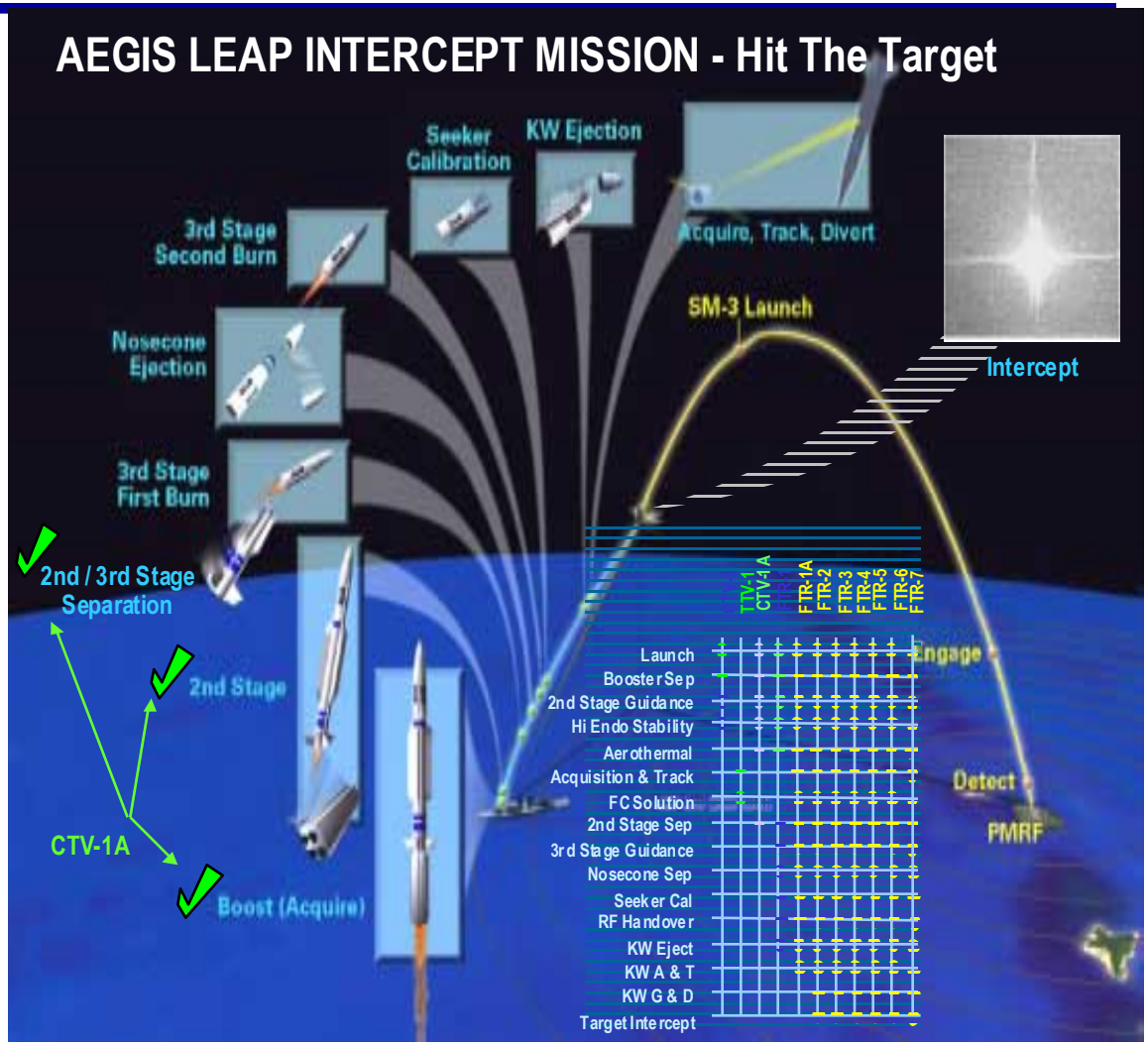
- Demonstrate Airframe Stability and Control of FTR-0 SM-3 Missile Through Planned FTR-3 Mission Second / Third-Stage Separation Event

15 Jul 00 Flight Test Round (FTR-1)
USS LAKE ERIE (CG-70)
Primary Objective

- Demonstrate Third Stage Airframe Stability/Control of FTR-1 Configured SM-3 Missile Through KW Separation

Primary Objective Not Met Due To -- Mission Sequence Anomaly

- Missile Performance up through 2nd Stage Nominal and Matched CTV-1A



FTR-1A WILL REPEAT FTR-1 OBJECTIVES

What Does All This Mean?

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- The Surface Navy provides a stabilizing influence and assures access to crisis areas overseas
- We are essential to execute the National Military Strategy
  - The Air Force and Army have been brought back home
  - Our strategy depends on rapid redeployment of CONUS-based forces to overseas theaters
  - The Surface Navy protects the ports and air fields essential for re-deployment overseas
- Increasingly, National Command Authorities are dependent on us for:
  - Deep strike / Land attack
  - Projected defense over land
  - Force protection

Vision

Spirit of '76

We are a unique community of seagoing professionals who have grown from a proud tradition into 21st Century Leaders and Warriors. Surface Warfare embodies Navy Core Values, provides early leadership opportunities and provides versatility to the Navy at large through our multi-dimensional career. We embrace change and understand that our long term success is dependent on the professional development of our people. Our Commanding Officers lead from the front. We value our junior people and prepare them for success.